COMMITTEE ON COLLEGE AND UNIVERSITY TEACHING

COMMENTS ON REPORT OF COMMITTEE

The following comments on the Report of the Committee on College and University Teaching which have been received by the Chairman of the Committee from Professor J. Zenneck of Munich may be of interest to readers of the *Bulletin*. Dr. Zenneck is Professor of Physics and Dean of the Faculty at the *Technische Hochschule* as well as Division Secretary of the Bavarian Academy of Sciences.

First let me say that nowhere else have I found so clear, complete, and excellent a discussion of matters which concern instructors and instruction in our universities. In commenting on the Report I would ask that certain things be borne in mind, namely, (1) that through several years' residence in the United States I became acquainted with universities and colleges of your country, although of course not sufficiently to pass judgment upon questions affecting them, and (2) that I am a physicist, hence my comments have a special relation to that subject. I am not sure that they will be relevant in equal measure to other branches of the curriculum.

At the outset let me add my word of warning against the practice of officially inviting students to pass judgment on the merits of a professor. If anyone wishes to know whether a professor is a good teacher he can learn this by talking with colleagues and assistants, as well as with students, provided he takes the time and trouble to do this.

What I miss in the report is adequate reference to what we call "studying." In my opinion a large amount of student-training must be had from self-study. The student must, so far as possible, sit down at home each day and work out his problems, read books, and educate himself. The instructor who understands the psychology of inducing students to study—we are mainly concerned with advanced students—is, in my opinion, much more efficient than the instructor who merely lectures. It is my impression that in institutions of higher education not too much should be taught, but that there should be much studying done.

For undergraduates a teacher will perhaps suffice if he is a good instructor even though his scientific attainments be only moderate. For advanced students and for his influence upon them, on the other hand, it is necessary that the instructor shall possess the highest possible scientific qualifications. I know, of course, that there are professors who in spite of high academic qualifications are poor instructors, that is, they give poor lectures. But the training of students in scientific research by one who himself possesses a highly developed scientific technique must necessarily be good. When a teacher of eminence in any scientific field gives poor lectures, I think the reason can be ascribed to a lack of lecturing ability in comparatively few cases; in the great number of instances it is due to poor preparation.

Occasionally the reason for this deficient preparation is that the instructor holds it beneath his dignity to teach. Sometimes, again, the reason is sheer indolence. On the other hand I have encountered many cases in which instructors did not give good lectures at the beginning of their teaching careers but through careful preparation and self-study developed into very successful instructors.

As preparation for a lecture it does not suffice to have mastered the subject of the lecture. One must carefully consider how the subject can be made clear to the student, and this contemplation should precede the lecture by a very short space of time. In elucidating difficult problems, moreover, one should be very careful in his choice of words, and in experimental physics should use similar care in selecting the graphs which are placed upon the blackboard. In order that these graphs may appear accurately on the board I usually set them down on plotted paper in my manuscript so that I shall have the dimensions correct.

To my way of thinking it is poor policy to write down and then read a lecture to a class of students. The virility of the lecture is lost thereby, and besides there is a temptation to leave the manuscript unchanged even though the original lecture is no longer up to date. It is better to carry into the classroom a detailed outline of the lecture and follow it.

For myself I do not think much of technical Courses in Education, my reasons being, in general, those which are given in the Committee's Report. Experience has taught me that educationists who presume to teach others how to teach are usually poor teachers themselves; at any rate this situation is frequently encountered in Germany. The training of an instructor is first of all a matter of self-education, not one of education at the hands of others. One need only watch a very good instructor in order to find out the direction in which he is himself deficient.

I hold it to be of importance that an instructor distinguish between headings and sub-headings in his lectures, and that these should be written on the blackboard before the lecture begins. I know that this practice is looked upon as "pedagogical" in many colleges, but I also know that it is highly appreciated by good students. It is the best way of letting the student know exactly what the discourse is about.

The best way to obtain good college instructors is to arrange their research and living conditions on a proper scale. When the German universities possessed comparatively large resources, and the university instructor had a decent income, every man with scientific ability and interests sought a university position. But when conditions become otherwise than favorable, the competent physicist and competent engineer prefer to take positions in industry where there are greater possibilities for scientific work and where they find better remuneration. Similarly a good physician would rather be attached to the staff of a well-equipped state hospital than to a poorly equipped university clinic. If I am correctly informed the latter situation has already come to pass in America, and there is danger that the way is being opened for similar conditions in Germany, thus impairing the quality of university instructors.

In Germany *ordentliche* professors at the larger institutions and even many candidates for the doctorate have better incomes than *ausserordentliche* professors; moreover, professorships at large universities or in the *Hochschulen* under these conditions are preferred to those at smaller institutions. In the case of an appointment as a full professor at one of the large universities much depends—aside from scientific ability—upon the fact that the appointee is a good teacher. Before such an appointment is made, careful investigations concerning the ability of the applicant as an instructor are made.

In my opinion it is very essential that the professor demonstrate in his instruction that his own interests transcend his particular field of work. For example, in his physics instruction he should show some knowledge of technology, and at opportune times should display familiarity with such seemingly irrelevant matters as outdoor sports. In Germany the good will of students towards their instructor is enhanced if they know that he is interested in their activities. For myself I go riding with students and often ski with them, or sail with them, and find that this raises me in their estimation. Students are also favorably impressed when the instructor now and then adverts to subjects outside his regular field of proficiency and shows his breadth of interest in that way. A sense of humor will also contribute to the popularity of an instructor.

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